Lesson 6.3: Reciprocal Functions

Explore Your Understanding Assignment

This assignment includes multiple choice and short answer questions. For multiple choice questions, select the best answer. Each is worth 1 mark. Marks assigned to short answer questions are indicated for each question. Be sure to show all necessary work.

(1) _____ 1. If the point $\left(\frac{1}{4}, \frac{3}{2}\right)$ lies on the graph of $y = \frac{1}{f(x)}$, then the graph of $y = f(x)$ includes the point

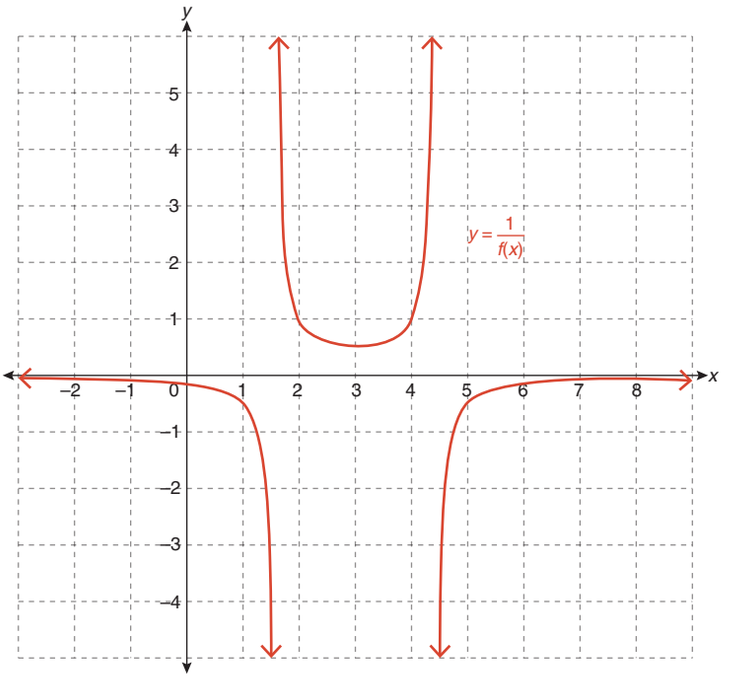
A. $\left(\frac{1}{4}, \frac{3}{2}\right)$

B. $\left(4, \frac{3}{2}\right)$

C. $\left(\frac{1}{4}, \frac{2}{3}\right)$

D. $\left(4, \frac{2}{3}\right)$

Use the following information to answer question 2.



(1) _____ 2. The range of $y = f(x)$ is

A. $\{y \mid y \leq 2, y \in \mathrm{R}\}$
B. $\{y \mid y \geq 2, y \in \mathrm{R}\}$
C. $\left\{y \mid 0 < y < \frac{1}{2}, y \in \mathrm{R}\right\}$
D. $\left\{y \mid y < 0 \text{ or } y > \frac{1}{2}, y \in \mathrm{R}\right\}$

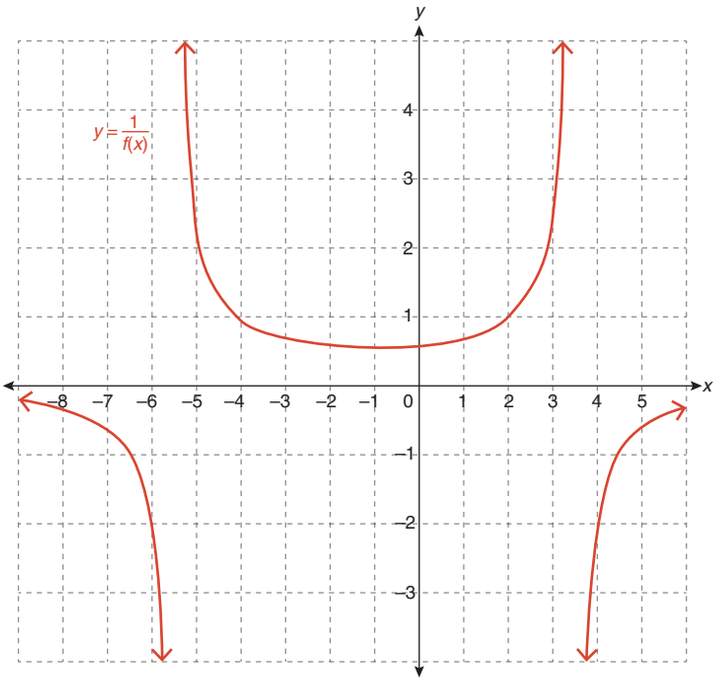
(1) _____ 3. If $f(x) = x^2 + 4x + 4$, then the domain of $y = \frac{1}{f(x)}$ is

A. $\{x \mid x \neq -2, 2, x \in \mathrm{R}\}$
B. $\{x \mid x \neq -2, x \in \mathrm{R}\}$
C. $\{x \mid x \neq 2, x \in \mathrm{R}\}$
D. $\{x \mid x \in \mathrm{R}\}$

(1) 4. The graph of $y = \frac{1}{14x + 90}$ has __*A*__ horizontal asymptotes, __*B*__ vertical asymptotes, and the graphs of the functions $y = 14x + 90$ and $y = \frac{1}{14x + 90}$ will intersect __*C*__ times. The values of *A*, *B*, and *C* are _____.

(2) 5. Sketch the graph of $y = \frac{1}{3x - 6}$, outlining the steps used.

(2) 6. Use the graph of $y = \dfrac{1}{f(x)}$ to graph $y = f(x)$.



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You have completed *Lesson 6.3 Explore Your Understanding Assignment*. Please proceed to the *Unit 6: Absolute Value and Reciprocal Function Final Review Assignment* on the next page of this *Workbook*.